

REMARKS/ARGUMENTS

I. General Remarks

Please consider the application in view of the following remarks.

II. Disposition of Claims

Claims 1-79 are pending in this application. Claims 38-56 and 62-79 have been withdrawn; claims 1-37 and claims 57-61 have been rejected. In this Response, Applicant has canceled claim 15 and amended claims 1, 17, 26, and 57.

III. Claim Rejections—Claims 1-37, 57, and 59-61

The Examiner has maintained his rejection of claims 1-37, 57 and 59-61 under 35 U.S.C. 103(a) as obvious from U.S. Patent No. 5,990,050 to Patel in view of “Amphiphilic Copolymers,” Langmuir 1998, 14, 5977-79 (Perrin). In the first office action, the Examiner stated that “Patel discloses a drilling/working fluid, to be used in a subterranean formation, having an invert emulsion fluid that includes an oleaginous fluid (continuous phase) having an oil and an oil-soluble glycol ether that can be miscible in oil but only 10% miscible in water, a non-oleaginous fluid, and an emulsifier to stabilize the invert emulsion.” Further, the Examiner stated that “Patel lists a series of emulsifiers (e.g. VERSACOAT®) followed by an alternate, separate list of surfactants, which can be instead used to produce or stabilize the invert-emulsion. Thus Patel does not require that the invert emulsion contain a surfactant.” In the present Office Action, the Examiner has restated/reaffirmed this position, adding the following:

First, as discussed in item 12 of OA, Patel discloses the composition to contain wetting agents or emulsifiers and lists NOVAMUL® among the emulsifiers expressly disclosed ‘that may be used for the invention.’ (Col. 5, lines 16-18). NOVAMUL® is an emulsifier that provides enhanced emulsion and physical stability. (See, NOVAMUL® product sheet in Applicant’s IDS of 12/16/2006). Accordingly, Patel is disclosing the composition can contain NOVAMUL® (an emulsifier not a surfactant). See, independent

claims 1 and 12 in Patel reciting the composition to contain an emulsifier but not requiring a surfactant.

Applicant again respectfully traverses the Examiner's rejection and this line of reasoning in support of the rejection, for the reasons stated in response to the previous office action, incorporated herein by reference, and for the further reasons provided below. The Examiner is incorrect in stating that NOVAMUL® is not a surfactant and has provided no basis for his position in light of Applicant's advice to the contrary. In another patent by the same inventor, Arvind D. Patel, as in the patent reference cited by the Examiner herein, and filed less than a year earlier than the patent reference cited by the Examiner herein, that other patent being U.S. 6,218,342, this same inventor states in column 9 at lines 59-60, that "NOVAMUL is a amidoamine surfactant available from M.I. Drilling Fluids." A copy of this patent is submitted as Exhibit A hereto. The NOVAMUL® product sheet referenced by the Examiner does not conflict with this statement that NOVAMUL® is a surfactant.

Further, Applicant respectfully submits that the Patel independent claims referenced by the Examiner as referring to an "emulsifier" cannot fairly be construed, as the Examiner has done, to mean a teaching or suggestion that the emulsifier may be something other than an emulsifier commonly known to the industry at the time. Patel includes no dependent claims further limiting the "emulsifier." All of the examples provided by the Patel reference employ surfactants as emulsifiers. The listing, at column 5, at lines 10-22, in the Patel reference, that: "Wetting agents and emulsifiers that may be suitable for use in this invention include, crude tall oil, oxidized crude tall oil, surfactants, organic phosphate esters, modified imidazolines and amidoamines, alkyl aromatic sulfates and sulfonates, and the like, and combinations or derivatives of these," is not believed to be an unusual listing in the art at the time. The Patel

reference, as a whole, is simply not directed to the problem solved by Applicant's invention and the Patel reference provides no teaching that suggests the advancement to the art that Applicant makes in his invention before the Examiner. Further, Applicant respectfully submits that the Examiner is overreaching to attribute to Patel a "surfactant-free" limitation as interpreted according to Applicant's specification. Patel does not teach use of a surfactant for purposes other than as a surfactant or emulsifier. Moreover, Applicant respectfully submits that interpretation of the prior art based on Applicant's own teachings is improper.

The Examiner has responded to Applicant's argument that Perrin is nonanalogous art by stating:

Applicant's claims are drawn to a method of treating a subterranean formation comprising a surfactant-free *emulsion*. Patel is drawn to water-soluble invert *emulsions* (see title). Perrin teaches a new route to prepare ordered monodisperse *emulsions* (See title). Accordingly, a person of ordinary skill in the art would look to scientific/technical journal articles regarding emulsion to solve problems regarding the use/application of emulsions in industries, such as in oil drilling technology.

Applicant respectfully submits that more is required than a common word of "emulsions" to make art material or even relevant. There are many kinds and uses of emulsions and the Examiner has provided no evidence that emulsions are fungible, from industry to industry or even within a single industry.

The Examiner has added that Applicant's IDS also cited Perrin. Applicant respectfully submits that the Assignee of the patent application, who filed that IDS, as a standard practice cites all references of which the Assignee has been informed by anyone to be of possible relevance to the patent application or as of possible aid to the Examiner in understanding the invention. Applicant does not, by the citation, intend to waive arguments of irrelevance of any cited reference with respect to novelty and unobviousness of the invention.

The Examiner has further stated:

Concerning Perrin teaching the polymer emulsifier for a different use and that Perrin 'is not concerned with improving emulsion stability [in oil drilling],' the fact that Applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious.

Applicant respectfully submits, however, that this statement is merely conclusory. The Examiner has failed to show how the advantage "would flow naturally from following the suggestion of the prior art" and has failed to show when "the differences would otherwise be obvious." The Examiner's further remark that, "Perrin is teaching advantages of macromolecule emulsifiers over surfactants and is therefore 'teaching away' from the use of surfactants" is, in Applicant's respectful opinion, a leap too far, lacking support with respect to Applicant's industry and intended use. Is the Examiner proposing that Perrin is teaching that surfactants should not ever be used as emulsifiers in the oil industry? Certainly such a conclusion lacks foundation in Perrin or Patel. The teaching of Perrin is what it is—a teaching of making ordered monodisperse macroemulsions—the type which provide uniform pore size at the micrometer scale that are useful as photonic band-gaps and optical stop-bands. The technique employs applying pressure on slides holding the sample while shearing the sample. There is no teaching in Perrin that suggests this technique has utility or effectiveness in oil field applications or in oil well operations. And there is no teaching in Patel that suggests utility of the copolymers taught in Perrin. Applicant respectfully submits that without the improper use of hindsight, and Applicant's own teachings, a person of ordinary skill in the art would not be able to obtain Applicant's invention from the teachings of Patel read in view of Perrin. Although the Examiner states he has relied on the overall teachings of Perrin "concerning providing a resultant uniform and stable emulsion," Perrin never refers to stability of an emulsion under oil field conditions.

IV. Claim Rejection—Claim 58

The Examiner has also maintained his rejection of claim 58 as obvious from Patel in view of Perrin and further in view of Kokal. The Examiner has argued:

Whether or not Kokal uses said breaker for a different purpose as argued by Applicant (i.e., crude oil emulsions in Kokal as opposed to the emulsion-based drilling and well treatment fluids of the instant invention) is not relevant as to whether it would have been obvious to a person skilled in the art, at the time of the instant invention, to add a breaker to the composition disclosed in Patel due to the commonality of using breakers in oil drilling/treatment fluids as taught by Kokal. Also, it is not clear from Applicant's arguments how distinct the emulsions taught in Kokal are from those encompassed by the instant claims.

Applicant respectfully traverses this rejection for the reasons stated in response to the previous office action, incorporated herein by reference, and for the further reasons provided herein. Kokal is directed to problems related to crude oil emulsions of the type that form during production, and particularly to "produced oilfield emulsions at the well head and at the wet crude handling facilities." Page 1, 2nd column. Such emulsions typically form naturally between the crude oil and the water mixed with the crude oil being produced. In other words, the emulsions of concern in Kokal occur naturally during production of crude oil; the emulsions are formed with that crude oil and brine present in the subterranean formation. These emulsions are different from drilling fluids and have no utility in drilling boreholes or other oilfield operations directed to boreholes for production of crude oil. These emulsions are undesirable and their stability is similarly not desired. As indicated above, the Examiner should not equate all emulsions or treat emulsions as fungible just because they share a common name, "emulsion."

Applicant respectfully submits that breaking a crude oil emulsion is not the same as breaking an emulsion used in drilling or well treatment fluids.

Applicant's invention concerns emulsion based drilling and well treatment fluids especially formulated for use in drilling and treating a wellbore. These emulsions are purposely synthesized for specific use in the drilling and well treating operations. Applicant's claim 58 is directed to a method of fracturing a subterranean formation. Applicant's surfactant free emulsion facilitates placement of proppant particulates into the subterranean formation at a pressure sufficient to create or enhance a fracture in the formation. One skilled in the art readily understands that removal of the emulsion, as facilitated by the emulsion breaker, after such proppant placement and fracturing enhances production from the subterranean formation. Such removal is not to "effectively attain/produce crude oil, with lower amount of water contamination, as taught by Kokal" as stated by the Examiner.

Applicant teaches in paragraph [0027] of his specification that advantageously "not only are the emulsions of the invention typically more stable than traditional surfactant stabilized emulsions, but they are more controllably and easily broken when desired. . . ." Since the emulsions discussed in Kokal are not synthetically and purposely created, the Kokal teaching respecting breaking the crude oil emulsions discussed therein seems inapplicable to this aspect of Applicant's invention.

SUMMARY

Applicant respectfully traverses the Examiner's rejections under 35 U.S.C. §103, submitting that even if one combined the teachings of Patel with Perrin or of Patel with Perrin and Kokal, one would still not have the benefit of Applicant's invention without Applicant's teachings.

Applicant respectfully submits that the Examiner's conclusion that the combination of the references renders Applicant's invention obvious is erroneous. Each of the references that the

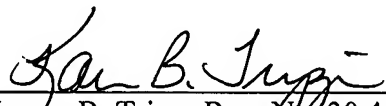
Examiner cited is directed to a different problem as well as a different solution to the problem than is Applicant's invention. The references never suggest application of their teachings to stabilizing invert emulsion drilling fluids and well treatment fluids using a polymeric emulsion stabilizer or emulsifier instead of a surfactant emulsifier.

Applicant has amended claims 1, 17, 26, and 57 in this Response to further define the invention. Support for the amendments may be found in other claims, such as, for example, claims 15 and 17, respectively cancelled and amended to avoid redundancy, and in paragraph [0027] of Applicant's specification. If a Request for Continued Examination is deemed necessary for consideration of Applicant's amendments, Applicant has filed one herein for such purpose.

Applicant respectfully requests the Examiner reconsider his position and Applicant's claims. Applicant respectfully submits that this response is fully responsive to the Examiner's office action and Applicant respectfully requests the Examiner to allow the application to proceed to issue.

Respectfully submitted,

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